"Western Treasure -- Deep, Wet Snow"

FEDERAL-STATE COOPERATIVE SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for

ARIZONA

MARCH 15, 1948

By

Division of Irrigation, Soil Conservation Service
United States Department of Agriculture

Data included in this report were obtained by the agency named above in cooperation with the Federal, State, and local organizations listed on the last page of this report.

FEDERAL-STATE COOPERATIVE

SNOW SURVEYS AND IRRIGATION WATER FORECASTS

FOR

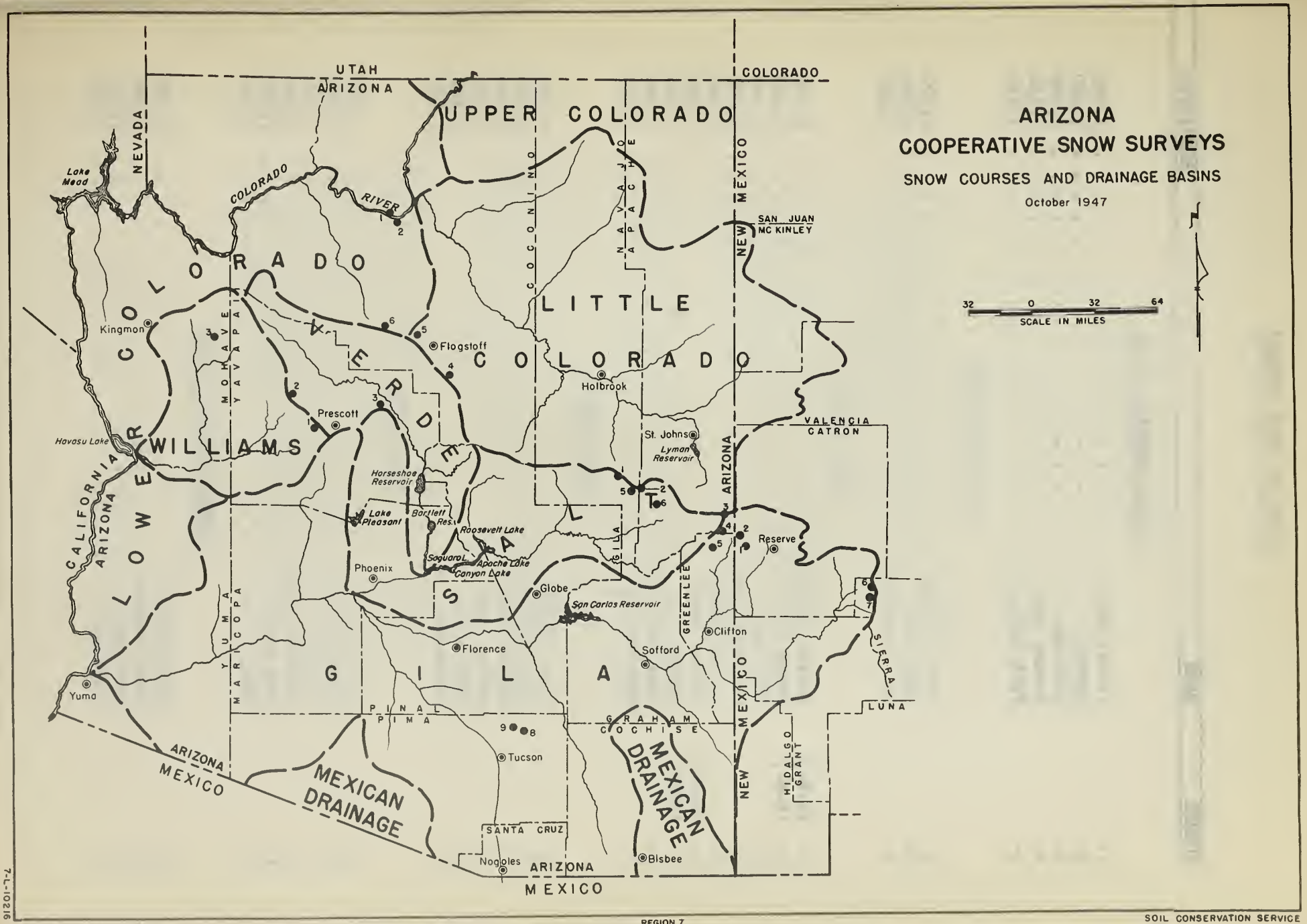
ARIZONA

Report Prepared

by

Clyde E. Houston-Hydraulic Engineer

Division of Irrigation
Soil Conservation Service
Reno, Nevada


ARIZONA
COOPERATIVE SNOW SURVEYS
SNOW COURSES AND DRAINAGE BASINS
October 1947
SCALE IN MILES
32 0 32 64
UTAH
ARIZONA
COLORADO
NEVADA
NEW MEXICO
UPPER COLORADO
LITTLE COLORADO
COLORADO
VERDE
LOWER COLORADO
GILA
WILLIAMS
CALIFORNIA
ARIZONA
Lake Mead
Havasu Lake
COLORADO RIVER
Kingman
Flagstaff
Prescott
Holbrook
St. Johns
Lyman Reservoir
Horseshoe Reservoir
Lake Pleasant
Bartlett Res.
Roosevelt Lake
Saguaro L.
Apache Lake
Canyon Lake
Phoenix
Globe
San Carlos Reservoir
Florence
Sofford
Clifton
Reserve
Yuma
Tucson
Nogales
Bisbee
SAN JUAN
MC KINLEY
VALENCIA
CATRON
GREENLEE
SIERRA
LUNA
HIDALGO
GRANT
MOHAVE
YAVAPAI
COCONINO
NAVAJO
APACHE
YUMA
MARICOPA
PINAL
PIMA
GRAHAM
COCHISE
SANTA CRUZ
MEXICAN DRAINAGE
ARIZONA
MEXICO

INDEX TO SNOW COURSES

NUMBER		NAME	ELEVATION
		LITTLE COLORADO RIVER	
1.		Forest Dale	6,000
2.		McNary	7,200
3.		Nutrioso	8,500
4.		Mormon Lake	7,350
5.		Fort Valley	7,350
		WILLIAMS RIVER	
1.		Iron Springs	6,200
2.		Camp Wood	5,700
3.		Willow Ranch	5,000
		GILA RIVER	
1.	(N.M.)	Frisco Divide	8,000
2.	(N.M.)	State Line	8,000
3.		Nutrioso	8,500
4.		Coronado Trail	8,000
5.		Beaver Head	8,000
6.	(N.M.)	Taylor Creek	7,850
7.	(N.M.)	Inman	7,800
8.		Rose Canyon	7,300
9.		Bear Wallow	8,100
		VERDE RIVER	
1.		Iron Springs	6,200
2.		Camp Wood	5,700
3.		Mingus Mountain	7,100
4.		Mormon Lake	7,350
5.		Fort Valley	7,350
6.		Chalender	7,100
		SALT RIVER	
1.		Forest Dale	6,000
2.		McNary	7,200
3.		Nutrioso	8,500
4.		Coronado Trail	8,000
5.		Milk Ranch	7,000
6.		McKay	8,250
		LOWER COLORADO RIVER	
1.		Bright Angel	8,400
2.		Grand Canyon	7,500
5.		Fort Valley	7,350
6.		Chalender	7,100

WATER SUPPLY OUTLOOK

Arizona

March 15, 1948

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* * * * * * * * * * * * * * * * * * * * * * *
* The water shortage throughout the main    *
* irrigated areas of Arizona will con-      *
* tinue. Although snow stored water on      *
* the higher elevations in general, is      *
* equal to any previous recorded high at    *
* this date, it is still insufficient to    *
* overcome the extremely low storage ex-    *
* isting in practically all reservoirs      *
* in the State.                             *
* * * * * * * * * * * * * * * * * * * * * * *
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Precipitation Since February 1, precipitation throughout the upper watersheds of Arizona is much greater than last year, and in most areas is above normal. On the mountains of Little Colorado and Gila Watersheds precipitation, since February 1, is about 150 percent of normal and Salt River has received about 130 percent. Soil moisture conditions in the mountains is excellent while the irrigated valleys are dry.

Snow Cover Throughout the higher elevations of the State snow stored water has been continually increasing up to this date. On Little Colorado Watershed it is about 300 percent of the recorded average, while on the Salt and Gila it is about 250 percent. In the mountains of southern and northern Arizona there is a decided improvement in snow cover and soil moisture conditions in comparison to last year.

Runoff Subnormal runoff continues from most of the main watersheds in the State. Above average precipitation since October 1947 has maintained streamflow in Little Colorado River at about 500 percent of normal. The percentage has been decreasing, and during the month of February it was about 140 percent. Verde River flowed about 55 percent of normal during February while the cumulative since October was only 66 percent. Gila and Salt were respectively 60 and 64 percent for February and 53 and 107 percent since October. Due to the above average snow cover on the headwaters of these streams the March flow should approach normal.

Reservoir Storage Storage in important Arizona reservoirs is at or near an all time low for this date. San Carlos Reservoir with slightly more than 6,000 acre-feet is only two percent of average and less than one percent of capacity. Storage is at the lowest stage recorded for this date. Salt River Resvoirs were lower only once (1940) since the system was completed. Present storage is 57 and 27 percent respectively of last year and the March 15 average. Verde River Reservoirs contain 18,000 acre-feet which is slightly more than 50 percent of last years extreme low. Lake Pleasant is storing less than 1,000 acre-feet. This is the lowest storage recorded for this date and is less than three percent of the 1937-46 average. Lake Mead is improved over last year at this date and is in its best condition since 1944.

STATUS OF RESERVOIR STORAGE, March 15, 1948

BASIN and STREAM	RESERVOIR	USABLE CAPACITY (Thous. A.F.)	THOUSANDS ACRE FEET IN STORAGE about Mar. 15 1948	1947	1946	1945	10-yr. avg. 1937-1946
Agua Fria	Lake Pleasant	179	1	3	4	10	37
Colorado	Lake Havasu	688	593	621	616	592	546[a]
Colorado	Lake Mead	27,935	18,888	16,431	18,056	18,384	19,725[a]
Gila	San Carlos	1,200	6	18	29	110	268
Little Colorado	Lyman	29	9	14	4	3	8[b]
Salt	Salt River[c]	1,771	247	432	671	940	916
Verde	Bartlett	179	17	24	2	38	91[b]
Verde	Horseshoe	67	1	10	9	New Reservoir	

a - Average for years 1939-1946

b - Average for years 1941-1946

c - Includes Roosevelt, Apache, Saguaro and Canyon Lakes

ARIZONA SNOW SURVEYS MARCH 15, 1948

LOCATION							SNOW COVER MEASUREMENTS					
								Water Content (inches) Same Approx. date			Past Record thru 1948	
DRAINAGE BASIN and SNOW COURSE	Number	Sec.	Twp.	Rge.	Elev.	Date of Survey	Snow Depth (inches)	1948	1947	1946	Years of Record	Av. Water Content (inches)
LITTLE COLORADO RIVER												
Forest Dale	1	2	9N	21E	6000	3/17	2.7	1.3	0	0	9	0.4
McNary	2	14	8N	23E	7200	3/17	10.4	4.1	0	0.6	9	1.6
Nutrioso	3	23	6N	30E	8500	3/15	17.2	4.8	0	0	9	1.5
Mormon Lake	4	13	18N	8E	7350	3/15	40.0	11.4	0	New Course	2	5.7
Fort Valley	5	22	22N	6E	7350	3/15	7.8	2.0	0	"	2	1.0
WILLIAMS RIVER												
Iron Springs	1	22	14N	3W	6200	3/12	0	0	0	0	3	0
Camp Wood	2	3	16N	6W	5700	3/15	0	0	0	0.2	3	0.1
Willow Ranch	3	16	21N	11W	5000	3/15	0	0	0	0	3	0
GILA RIVER												
Frisco Divide	1	31	6S	20W	8000	3/15	22.2	6.2	0	0.2	9	1.9
State Line	2	6	6S	21W	8000	3/15	17.1	5.1	0	0	9	2.5
Nutrioso	3	23	6N	30E	8500	3/15	17.2	4.8	0	0	9	1.5
Coronado Trail	4	26	5N	30E	8000	3/15	20.8	6.1	0	0	9	3.0
Beaver Head	5	13	4N	30E	8000	3/15	23.1	6.0	0	0	9	2.7
Taylor Creek	6	20	10S	10W	7850		No Report		0	0		
Inman	7	6	11S	10W	7800		No Report		0	0		
Rose Canyon	8	15	12S	16E	7300	3/15	6.6	1.3	New	Snow	Course	
Bear Wallow	9	6	12S	16E	8100	3/15	12.9	3.0	"	"	"	

ARIZONA SNOW SURVEYS MARCH 15, 1948

DRAINAGE BASIN and SNOW COURSE	LOCATION Number	Sec.	Twp.	Rge.	Elev.	Date of Survey	SNOW COVER MEASUREMENTS Snow Depth (inches)	Water Content (inches) Same Approx. Date 1948	1947	1946	Past Record thru 1948 Years of Record	Av. Water Content (inches)
VERDE RIVER												
Iron Springs	1	22	14N	3W	6200	3/12	0	0	0	0	3	0
Camp Wood	2	3	16N	6W	5700	3/15	0	0	0	0.2	3	0.1
Mingus Mountain	3	3	15N	2E	7100	3/15	6.0	2.3	0	New Course	2	1.2
Mormon Lake	4	13	18N	8E	7350	3/15	40.0	11.4	0	"	2	5.7
Fort Valley	5	22	22N	6E	7350	3/15	7.8	2.0	0	"	2	1.0
Chalender	6	27	22N	3E	7100	3/15	14.8	4.2	0	"	2	2.1
SALT RIVER												
Forest Dale	1	2	9N	21E	6000	3/17	2.7	1.3	0	0	9	0.4
McNary	2	14	8N	23E	7200	3/17	10.4	4.1	0	0.6	9	1.6
Nutrioso	3	23	6N	30E	8500	3/15	17.2	4.8	0	0	9	1.5
Coronado Trail	4	26	5N	30E	8000	3/15	20.8	6.1	0	0	9	3.0
Milk Ranch	5	28	8N	23E	7000	3/17	3.6	1.2	0	0.5	8	0.7
LOWER COLORADO												
Bright Angel	1	34	33N	3E	8400	3/15	37.7	7.8	7.8	New Course	2	7.8
Grand Canyon	2	21	30N	4E	7500	3/15	10.2	1.5	0	"	2	0.8
Fort Valley	5	22	22N	6E	7350	3/15	7.8	2.0	0	"	2	1.0
Chalender	6	27	22N	3E	7100	3/15	14.8	4.2	0	"	2	2.1

LIST OF SNOW SURVEYORS

SNOW COURSE	SURVEYOR
Forest Dale	Ward T. Kindred
McNary	Ward T. Kindred
Nutrioso	R.L. Diggs & Mrs.R.L. Diggs
Mormon Lake	M. F. Greaves
Fort Valley	Martin & Loska
Iron Springs	Ernest Saxby
Camp Wood	Mrs. C. C. Merritt
Willow Ranch	Tiny Miller
Frisco Divide	Dean M. Earl
Coronado Trail	R.L. Diggs & Mrs. R.L. Diggs
Beaver Head	Jes Burke
Taylor Creek	F.M. Inman
Inman	F.M. Inman
Mingus Mountain	Harold Linn
Chalender	V.J. Schroeder & E. Weil
Milk Ranch	Ward T. Kindred
State Line	Dean M. Earl
Rose Canyon	Wm. Hughes
Bear Wallow	Wm. Hughes
Bright Angel	S. Brown & J. Brown
Grand Canyon	A. Brown,F. Bruock, & J.Riffey

The following organizations cooperate in the Arizona snow survey work:

STATE

Nevada Agricultural Experiment Station
Reno, Nevada

FEDERAL

Department of Agriculture
- Forest Service
  - Apache Forest
  - Coconino Forest
  - Coronado Forest
  - Gila Forest
  - Kaibab Forest
  - Prescott Forest
  - Southwestern Forest and Range Expt. Station, Fort Valley, Arizona
- Soil Conservation Service
  - Division of Irrigation

Department of Commerce
- Weather Bureau
  - Arizona Section

Department of Interior
- Bureau of Reclamation
  - Region III
- Geological Survey
  - Arizona District
- Indian Service
  - Fort Apache Reservation
- National Park Service
  - Grand Canyon National Park

Gila Water Commissioner
Safford, Arizona

IRRIGATION PROJECTS

Salt River Valley Water Users Association
Phoenix, Arizona

San Carlos Irrigation and Drainage District
Coolidge, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.